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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/980,143	03/04/2002	Yuichi Hattori	450101-03141	8083

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NEW YORK, NY 10151

EXAMINER
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ROYAL, PAUL

ART UNIT	PAPER NUMBER
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3611

DATE MAILED: 01/27/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/980,143

Applicant(s)

HATTORI ET AL.

Examiner

Paul Royal

Art Unit

3611

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 06 December 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) 3 and 29 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2,6-8,15-20,23,24,27,28 and 30 is/are rejected.
- 7) ☒ Claim(s) 4,5,9-14,21,22,25 and 26 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 06 December 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. §§ 119 and 120

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Election/Restrictions***

1. Claims 3 and 29 withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected mounted ball relative movement sensor, there being no allowable generic or linking claim. Election was made **without** traverse in Paper No. 8.

### ***Drawings***

2. The drawings are objected to because they appear to fail to show Movement Vector A in Figure 18. Any structural detail that is essential for a proper understanding of the disclosed invention should be shown in the drawing. MPEP § 608.02(d).

### ***Specification***

3. The disclosure is objected to because of the following informalities:
4. at page 21, line 2, "showning" should be "showing", at page 25, line 8, "asctive" should be "active", at page 36, line 21, "asmounts" should be "amount". . Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

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5. Claims 15 and 28 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The specification does not describe selecting a foot sole suited to the road surface.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1, 2, 6-8, 16-20, 23-24, 27 are rejected under 35 U.S.C. 102(b) as being anticipated by Nishikawa et al. (US 5,737,217).

Nishikawa et al. teaches a legged mobile robot having at least a plurality of movable legs (34R, 4L), comprising: a relative movement measurement sensor (382) arranged on the foot sole of each movable leg for measuring the amounts of relative movements between the foot part and the road surface;

and a controller (26) for controlling the movements of the legged mobile robot based on the amounts of relative movements between the foot part and the road surface as measured by the relative movement measurement sensor (382);

wherein the relative movement measurement sensor (382) measures the amount of the relative movement of the foot part relative to a direction parallel to the road surface and/or the amount of the relative movement of the foot part around a normal of the road surface;

wherein said controller halts the movement on the road surface responsive to the amount of the relative movement between the foot part and the road surface exceeding a preset threshold value during movement on the road surface, verifies whether or not the movement operation can further be continued and executes a preset assistance request operation in case the controller verifies that the movement operations cannot be continued, see column 10, line 60 to column 12, line 4.

7. Claim 30 is rejected under 35 U.S.C. 102(b) as being anticipated by Osada (US 6,317,652).

Osada teaches a relative movement measurement sensor for a legged mobile robot for measuring the amount of relative movement between a foot part and the road surface, the sensor being applicable to a foot part of a legged mobile robot having at least a plurality of movable legs comprising:

imaging means (7) for imaging a ground touching surface of the foot part;

image processing means (34) for comparing images photographed by the imaging means at a preset time interval;

and calculating means (39) for calculating the amount of the relative movement relative to the road surface of the foot part at the preset time interval based on the results of image comparison by the image processing means.

***Allowable Subject Matter***

8. Claims 4, 5, 9-14, 21-22, and 25-26 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: for claim 4, the prior art does not show a legged mobile robot having the claimed limitations where the relative movement measurement sensor arranged on the foot sole includes the further limitations presented by the applicable dependent claims.

Note, Osada (US 6,317,652) teaches away from claim 4 stating, in relevant part, a "... camera installed on the foot of the leg is disadvantageous in that the camera tends to be easily damaged or smeared by the environment in which the robot walks ...".

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."


**Conclusion**

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Gaskill teaches mechanical movement. Soto teaches land vehicle with articulated legs. Stewart teaches a walking vehicle. Yoshino et al. '859 teaches a walking robot. Morgrey teaches a walking robot. Boldt teaches power assist device. Yoshino et al. '397 teaches a walking robot. Haikawa teaches a mobile robot. Hirose et al. teaches a mobile robot. Kawai et al. teaches a legged moving robot. Osada teaches a legged mobile robot. Kuroki teaches a robot system. Hirose '331 teaches a robot arm. Villedieu teaches a two-wheeled robot. Jacobs teaches a robot. Hornby et al. teaches a robot device. Kuroki et al. '892 teaches a robot control. Gomi et al. 'mobile robot. Rehkemper et al.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Paul Royal whose telephone number is 703-308-8570. The examiner can normally be reached on 8:30-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lesley D. Morris can be reached on 703-308-0629. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-1113.

  
P. Royal  
January 12, 2004

Paul Royal  
Examiner  
Art Unit 3611

  
**LESLEY D. MORRIS**  
**SUPERVISORY PATENT EXAMINER**  
**TECHNOLOGY CENTER 3600**